

Orphan gamma-ray flares from relativistic blobs comptonizing radiation of luminous stars in jets of AGNs

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Massive black holes in active galaxies are surrounded by bulges of both evolved late type and also young luminous stars in nuclear stellar clusters. The luminous stars can enter a jet region which contain fast moving blobs filled with relativistic electrons. We calculate the gamma-ray spectra and light curves produced by these electrons in the Inverse Compton electron-positron pair cascade process. Such scenario can explain the appearance of the orphan gamma-ray flares in blazars. As an example, we model the GeV and TeV gamma-ray emission from the nearby BL Lac type AGNs (1ES 1959+650 or Mrk 421) and from a distant FSRQ PKS 1222+21.

Summary

We consider the mechanism for orphan gamma-ray flares in blazars in which blobs containing relativistic electrons in the jet encounter luminous stars. Gamma-rays are produced in the inverse Compton electron-positron pair cascade initiated by electrons in the soft radiation of the star. As an example, we discuss application of such scenario to specific objects.

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